REALPIX BROADCASTING

RealNetworks Technical Blueprint Series

RealSystem 8

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BROADCASTING REALPIX

The RealPix broadcast application connects to RealServer and polls a specified directory every second for an updated JPEG image file. When it finds an updated image file, it sends the file to RealServer, which broadcasts the file to the connected RealPlayers. New files replace old files with a transition that alternates between a fade-in and a "push" wipe transition.

Additional Information

RealSystem Production Guide provides an overview of broadcasting. *RealPix Authoring Guide* explains the RealPix mark-up. Both manuals are available at **http://service.real.com/help/library/encoders.html**. For more on configuring a broadcast with RealServer, see *RealServer Administration Guide*.

RealPix Broadcast Application

You can broadcast RealPix to multiple viewers with an application included with the HTML version of this document. The broadcast application runs on any Windows 32-bit operating system. It is meant to demonstrate how to use the RealPix broadcast interfaces, and is not intended for regular use in a production environment.

If you intend to broadcast RealPix regularly, you can build a custom broadcast application from publicly available C++ source code in the RealSystem SDK, available at **http://www.realnetworks.com/devzone/downlds/index.html**. The SDK includes the C++ sample source code for a RealPix broadcast application. Subject to the SDK license agreement, you can customize the broadcast application to do any of the following:

- Compile the RealPix broadcast application to run on any operating system.

- Modify the broadcast application with new features.
- Integrate RealPix broadcast features into another application.

Tip

Available at **http://www.realnetworks.com/products/**, RealNetworks tools let you broadcast RealAudio and RealVideo as well.

Broadcast Libraries

The RealPix broadcast application comprises the **exlivpix.exe** executable file and a few DLLs. These files must reside together, but you can move them to any directory on a RealPix broadcast machine. To run the live RealPix encoder, you use the shared libraries listed in the following table.

RealPix Broadcast Shared Libraries

Windows 32-Bit	UNIX
pxli3260.dll	pxlive.so.6.0
pxcg3260.dll	pxcgif2.so.6.0
pxcj3260.dll	pxcjpeg2.so.6.0
encn3260.dll	encnet.so.6.0
sdpp3260.dll	sdpplin.so.6.0
auth3260.dll	authmgr.so.6.0
rn5a3260.dll	rn5auth.so.6.0

You can use the RealServer machine or any Windows 32-bit machine with a network connection to RealServer. RealPix broadcast requires minimal system resources, but RealNetworks recommends using a Pentium 133 MHz or faster processor with at least 32 Megabytes of memory.

Note

To broadcast RealPix from a UNIX platform, copy the libraries from your platform's RealServer `plugins` directory and compile the broadcast application. See "RealPix Broadcast Application" on page 1 for more on the application source code.

Creating a Broadcast RealPix Clip

Create RealPix broadcast images in JPEG format (static GIF and animated GIF are not supported). You set RealPix window attributes such as width and height when you start the broadcast application. RealServer sends these attributes to each RealPlayer when it connects to the broadcast. The broadcast images then scale to the window size when received by RealPlayer, maintaining their height-to-width aspect ratios.

Additional Information

For more on aspect ratios, see *RealPix Authoring Guide*.

Setting the Broadcast URL

Consult with the RealServer administrator to determine the URL for the RealPix broadcast. If you are linking a Web page directly to the RealPix broadcast, the URL may look like this:

```
<a href="http://realserver.company.com/ramgen/encoder/media/slides.rp">...</a>
```

This URL includes two virtual directories. The `ramgen` virtual directory makes RealServer launch RealPlayer without a separate RAM file. The `encoder` virtual directory specifies a broadcast coming in on a certain port of RealServer rather than an actual file existing on a file system. The RealServer administrator sets up and names these virtual directories.

If you use a SMIL file, the Web page URL to the file may look like this:

```
<a href="http://realserver.company.com/ramgen/media/daily.smi">...</a>
```

Within the SMIL file, you'll have an RTSP link to the RealPix broadcast:

```
<ref src="rtsp://realserver.company.com/encoder/media/slides.rp"/>
```

Using SMIL, you can embed a RealPix broadcast in a multiclip presentation. You might have a RealAudio narration and a RealPix region for broadcast images, for example. The SMIL file uses the broadcast URL for RealPix and a standard URL for the on-demand RealAudio clip. Each person who views the presentation hears the audio from its normal beginning, but joins the RealPix broadcast in progress.

Additional Information

For more on using SMIL and specifying URLs for media clips, see *RealSystem Production Guide*, available at **http://service.real.com/help/library/encoders.html**.

Running the RealPix Broadcast Application

To run the RealPix broadcast application, start the Windows DOS prompt and change to the directory that holds the application. Then start the application as shown in this example:

`c:\RealPix> exlivpix.exe` *`server port filename imgname width height bitrate username password`*

The following table explains the parameters you enter on the command line. Enter all values without quotation marks.

RealPix Broadcast Application Start-up Parameters

Parameter	Value
server	The network address of the RealServer machine that will stream the RealPix clip. This can be a DNS name such as `realserver.company.com` or an IP address such as `204.71.154.5`.
port	The port on the RealServer machine that receives the RealPix data from the broadcast application. The RealServer administrator determines which port is used.
filename	Name for the RealPix live stream. This file name is used in the live RealPix hypertext link within the SMIL file or Web page. It does not have to be the same as the image input file, but it should end with the `.rp` extension.
imgname	Full path and file name of the image file on the broadcast machine to monitor, such as `c:\RealPix\broadcast\slide.jpg`.
width	Pixel value for the width of the RealPix display window. Equivalent to width set in RealPix `<head/>` tag.
height	Pixel value for the height of the RealPix display window. Equivalent to height set in the RealPix `<head/>` tag.
bitrate	Estimated average bit rate for the live RealPix stream in bits per second (bps). When the RealPix broadcast is part of a multiclip presentation, RealPlayer uses this estimate to determine if it has enough bandwidth to play the presentation.
username	A user name set by the RealServer administrator. The broadcast application must supply this user name to RealServer to connect to it.
password	The password for the user name. The application must supply this to connect to RealServer. The RealServer administrator sets the password.

Here is an example of a command used to start the RealPix broadcast application:

```
c:\RealPix> exlivpix.exe realserver.company.com 560 livepix.rp c:\RealPix\slide.jpg
192 256 10000 rpbroadcaster geneva394
```

Moving a RealPix File to the Broadcast Directory

Once started, the broadcast application checks the designated directory every second for an updated image file. You can place a new file in the directory manually or use any automated method. All files must use the same image file name specified during application start-up.

Make sure that the frequency with which you broadcast images does not exceed your broadcast bit rate. If a broadcast image is 35 Kilobytes (280 Kilobits) and your broadcast rate is 10,000 bps, for example, RealServer needs just under 29 seconds to broadcast that image.

Additional Information

For more on bandwidth, see *RealPix Authoring Guide*.

Stopping the Broadcast Application

To stop the RealPix broadcast stream, type a lowercase `q` at the RealPix command console. This causes RealServer to terminate the broadcast stream. It also shuts down the application console window on the RealPix broadcast machine.

Warning

Do not stop the RealPix broadcast by pressing **Ctrl+C** from the broadcast application console. This terminates the window but does not properly shut down the RealPix broadcast on RealServer.